3. The precise multi-pole magnetic component of claim 1, wherein the width of the circuit wire is between 75 μm to 2500 μm.

4. The precise multi-pole magnetic component of claim 1, wherein the gap between two adjacent circuit wires is between 75 μm to 2500 μm.

5. The precise multi-pole magnetic component of claim 1, wherein the meander structure of the circuits is a linear type extending along one-dimensional direction.

6. The precise multi-pole magnetic component of claim 1, wherein the meander structure of the circuits has an annular pattern.

7. A manufacturing method for precise multi-pole magnetic components, comprising the steps of:

providing a substrate; and

forming a plurality of circuit layers on the surface of the substrate using the PCB manufacturing technology;

wherein each layer of the circuit is separated from another by an insulating layer; the circuits on different layers are connected into a single circuit by drilling holes and filling them with soldering tin; the current input and output terminals on the top layer are reserved for connecting to a current source; each layer of the circuit has a meander structure for providing a current to flow in opposite directions to produce an alternate magnetic pole distribution; and the magnetic field distribution of each layer of the circuit is arranged to stack with enhancing configuration.

8. The manufacturing method of claim 7, wherein the width of the circuit wire is between 75 μm to 2500 μm.

9. The manufacturing method of claim 7, wherein the gap between two adjacent circuit wires is between 75 μm to 2500 μm.

10. The manufacturing method of claim 7, wherein the meander structure of the circuits is a linear type extending along one-dimensional direction.

11. The manufacturing method of claim 7, wherein the meander structure of the circuits has an annular pattern.